DRAFT CANDIDATE INDICATORS
(For 05/15/01 EAG meeting)
California Environmental Protection Agency
ENVIRONMENTAL PROTECTION INDICATORS FOR CALIFORNIA (EPIC)

ISSUE CATEGORY: AIR QUALITY

Issue 1: Criteria Air Pollutants

Sub-issue 1.1: Ozone

INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Days with Unhealthy Levels of Ozone Pollution Represents the total number of days per year in which the ozone concentration met or surpassed the California and/or National ozone standard somewhere in the State.	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	High quality data for urban settings; can show 20+ year trends; can be compared against known benchmark value; major ambient air pollutant and representative of the air pollution issue; nationally monitored pollutant
Peak 1-hour Ozone Concentration Presents the highest averaged 1-hour ambient ozone concentration recorded each year in various urban air regions in the State.	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	Representative of the potential acute health hazard; high quality data for urban settings; can show 20+ year trends; can be compared against known benchmark values
Exposure to Unhealthy Ozone Levels (of those who are exposed over the standard) Represents the number of Californians exposed yearly to unhealthy levels of ozone	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm;	High quality data for urban settings; can show 20+ year trends; can be compared against known benchmark value

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INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
VOC + NOx Emissions The total emissions of the pollutants responsible for the formation of ozone in California	I	ARB	CEIDARS/CEFS http://www.arb.ca.gov/emisinv/emsmain/emsmain.htm	Represents major contributors to formation of ambient ozone; major air pollutants themselves; high quality data for NOx and major VOC pollutants; can show 20+ year trends; most can be compared against known benchmark value

Sub-issue 1.2: Particulate Matter (PM10 and PM2.5)

INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Days with Unhealthy Levels of Inhalable Particulate Matter (PM10) Represents the total number of days per year in which the PM10 concentration met or surpassed the California and/or National standard somewhere in the State.	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	High quality data; can show trends; can be compared against known benchmark value; major ambient air pollutant and representative of the air pollution issue; nationally monitored pollutant
Peak 24-hour PM10 Concentration Presents the highest averaged 24-hour ambient PM10 concentration recorded each year in various urban air regions in the State.	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	Presents maximum ambient air concentration of major pollutant; representative of the severity of health hazard; high quality data; can show yearly trend; can be compared against known benchmark values
Maximum Annual Geometric Mean (PM10) Highest predicted annual concentration of PM10, by region, in California	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	Presents long-term ambient air concentration of major pollutant; representative of the chronic health hazard potential; high quality data; can show yearly trend; can be compared against known benchmark values

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INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Total Primary and Precursor PM10 Emissions The total emissions of the pollutants responsible for the formation of PM10 in California	II	ARB	CEIDARS http://www.arb.ca.gov/emisinv/emsmain/emsmain.htm	Represents major contributors to formation of pollutant; major air pollutants themselves;; limited trend data; data presentation still under consideration

Sub-issue 1.3: Carbon Monoxide

INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Days with Unhealthy Levels of Carbon Monoxide Represents the total number of days per year in which the CO concentration met or surpassed the California and/or National standard somewhere in the State.	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	High quality data; can show 20+ year trends; can be compared against known benchmark value; major ambient air pollutant and representative of the air pollution issue; nationally monitored pollutant
Peak 8-hour CO Concentration Presents the highest averaged 8-hour ambient CO concentration recorded each year in various urban air regions in the State.	I	ARB	ADAM http://arbis.arb.ca.gov/aqd/aqd.htm	Presents maximum ambient air concentration of major pollutant; representative of the potential acute health hazard; high quality data; can show 20+ year trends; can be compared against known benchmark values
CO Emissions Presents the major contributors of CO emissions, by region, in the State	I	ARB	CEIDARS/CEFS http://www.arb.ca.gov/emisinv/emsmain/emsmain.htm	Can show long-term trends; sensitive predictor of CO ambient air levels

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Issue 2: Toxic Air Contaminants (TACs)

INDICATOR	*TYPE*	*SOURCE*	*DATABASE*	*Rationale for Selection*
Total Emissions Represents the yearly total emissions of chemicals indentified as TACs in the State of California	I - II	ARB	CTI http://arbis.arb.ca.gov/aqd/aqd.htm	High quality data; can show trends for major TACs; representative of ambient air toxicity resulting from TACs; many are monitored nationally; can be compared against benchmark/risk factor values
Potency-weighted Emissions (for Carcinogens) Presents the major contributors to the ambient air cancer potential. Provides a means of comparing the cancer potencies and emissions for the major pollutants	I - II	ARB	CTI/OEHHA+ARB Risk Assessment Health Values http://arbis.arb.ca.gov/aqd/aqd.htm http://arbis.arb.ca.gov/toxics/healthval/healthval.htm	Can be compared against known risk factor values; high quality data; can show trends; monitored nationally
Toxicity-weighted Emissions (for Chronic Effects) Presents the chronic health hazard for the major TACs. Provides a means of comparing the chronic hazards and emissions for the major pollutants	I - II	ARB	CTI/OEHHA+ARB Risk Assessment Health Values http://arbis.arb.ca.gov/aqd/aqd.htm http://arbis.arb.ca.gov/toxics/healthval/healthval.htm	Reflects the major contributors to ambient air toxicity hazard; high quality data; can show trends; can be compared against known benchmark values

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INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Percent of Population Exposed to (100, 500, and 1000 in a million) Excess Cancer Risk from Air Pollution Reflects potential risk for cancer over a 70-year lifetime exposure; definitive expression of cancer risk from ambient exposure to carcinogens, particularly in urban settings	I - II	ARB	CTI/OEHHA+ARB Risk Assessment Health Values http://arbis.arb.ca.gov/aqd/aqd.htm http://arbis.arb.ca.gov/toxics/healthval/healthval.htm	Uncertainty factors in potency calculations results in health- protective, excess cancer risk estimates

Issue 3: Visibility

INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Visibility on Average Summer Day Average distance that can be seen during Summer; based on aerosol concentrations that result in changes in visibility.	I-II	ARB	ADAM (PM2.5 data pending) http://arbis.arb.ca.gov/aqd/aqd.htm	Visibility an important indicator of air quality to the public; data used to determine visibility generally adequate; enough data present to show trend
Visibility on Average Winter Day Average distance that can be seen during Winter; balance of pollutant components contributing to visibility shows seasonal differences. Based on aerosol concentrations that result in changes in visibility.	I-II	ARB	ADAM (PM2.5 data pending) http://arbis.arb.ca.gov/aqd/aqd.htm	Visibility an important indicator of air quality to the public; data used to determine visibility generally adequate; enough data present to show trend

INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Visibility in National Parks and Wilderness Areas Average distance that can be seen in Class 1 regions of California	I-II	IMPROVE Visibility Program	ARB/Crocker Nuclear Lab	Visibility in pristine areas (Class 1) of California is an important indicator of air quality to the public; program to determine aerosol concentrations and chemical components in Class 1 araes has recently begun

Issue 4: Indoor Air Quality

INDICATOR	TYPE	SOURCE	DATABASE	Rationale for Selection
Percent of People Exposed to Unhealthy Air in Schools and Homes Represents the potential health hazard from various substances that can be found indoors. (i.e., household products, offgassing from wood and carpets, mold, insect, and animal antigens and toxicants)	III	unknown	unknown	Californians spend a majority of their time indoors; studies have shown indoor air quality often to be worse than outdoor air quality; a program to consistently monitor air quality in schools and homes currently does not exist